

Claims:

1. A display apparatus for mounting on a rotatable object, the apparatus comprising:
 - a) a display array for displaying at least one display pattern;
 - 5 b) a self-contained rotational speed sensor for sensing a rotational speed of the rotatable object, the self-contained rotational speed sensor being entirely mounted on the rotatable object; and,
 - c) a microprocessor for controlling the display array based on the rotational speed of the rotatable object to display the at least one
 - 10 display pattern using persistence of vision of a viewer, the microprocessor being connected to the display device and the speed sensor.
2. The display apparatus as defined in claim 1 wherein the self-contained rotational speed sensor is one of an infrared LED sensor, an ultrasonic sensor, a tire deformation sensor and a G-force sensor.
- 15 3. The display apparatus as defined in claim 1 further comprising a power source for powering the display array and the microprocessor.
4. The display apparatus as defined in claim 3 wherein the power source is operable to generate power from movement of the rotatable object.
5. The display apparatus as defined in claim 1 further comprising a
- 20 memory for storing the at least one display pattern
6. The display apparatus as defined in claim 1 further comprising a receiver for receiving the at least one display pattern.
7. The display apparatus as defined in claim 6 wherein the receiver is a wireless receiver for receiving the at least one display pattern transmitted
- 25 to the receiver from a signal source spaced from the rotatable object such that the receiver is operable to receive the at least one display pattern when the rotatable object is moving.

8. A display apparatus for mounting on a rotatable object, the apparatus comprising:

a display device for displaying at least one display pattern; and,

a wireless receiver for receiving display-timing information for
5 the rotatable object from a signal source spaced from the rotatable object;

wherein the display device is operable to display the at least one display pattern based on the display timing information using persistence of vision of a viewer.

9. The display apparatus as defined in claim 8 further comprising a
10 power source for powering the display array.

10. The display apparatus as defined in claim 9 wherein the power source is operable to generate power from movement of the rotatable object.

11. The display apparatus as defined in claim 9 further comprising a
15 microprocessor connected to the display device for controlling the display device based on the display timing information, wherein the display timing information is speed information regarding the rotatable object and the microprocessor is operable to calculate a display timing from the speed information..

12. The display apparatus as defined in claim 8 wherein the receiver
20 is operable to receive the at least one display pattern transmitted to the receiver from a signal source off the rotatable object such that the receiver is operable to receive the at least one display pattern when the rotatable object is moving.

13. A method of displaying at least one pattern during rotation of a
25 rotatable object, the method comprising:

a) mounting a display apparatus for displaying the at least one display pattern on the rotatable object, the display apparatus comprising a wireless receiver;

b) determining a rotational speed of the rotatable object;

5 c) determining a display timing required to display the at least one display pattern on the rotatable object using persistence of vision of a viewer;

d) transmitting one of the display timing and the rotational speed to the wireless receiver; and

10 e) controlling the display apparatus based on the at least one display pattern and the display timing to display the at least one display pattern using persistence of vision of a viewer.

14. The method as defined in claim 13 wherein the display timing is determined from the rotational speed of the rotatable object and then
15 transmitted to the wireless receiver on the rotatable object.

15. The method as defined in claim 13 wherein step (d) precedes step (c), the rotational speed is transmitted to the wireless receiver on the rotatable object and the display timing is determined from the rotational speed by a microprocessor located in the display apparatus on the rotatable object.

20 16. The method as defined in claim 13 wherein the rotatable object is a tire of a vehicle.

17. The method as defined in claim 16 wherein the display apparatus is radially mounted on the tire.

18. The method as defined in claim 16 wherein step (d) comprises
25 transmitting one of the display timing and the rotational speed to the wireless receiver/transceiver from the vehicle.

19. The method as defined in claim 16 wherein step (d) comprises transmitting one of the display timing and the rotational speed to the wireless receiver from a ground-based transmitter external to the vehicle.

20. The method as defined in claim 13 further comprising
5 transmitting the at least one display pattern to the wireless receiver.

21. The method as defined in claim 13 further comprising transmitting the at least one display pattern to the wireless transceiver when the rotatable object is moving.